Lucas

46. If a series LCR circuit is operated below its resonant frequency, the circuit current:

___✓___ a) lags the applied voltage

___✓___ b) leads the applied voltage

_______ c) is in phase with the applied voltage

_______ d) is minimum

_______ e) is maximum

47. The impedance of the circuit in Figure 7 is:

_______ a) $R + (X_L - X_C)$

___✓___ b) $R + jX_L - jX_C$

_______ c) $R + X_L + X_C$

_______ d) $j(R + X_L - X_C)$

___✓___ e) $\sqrt{R^2 + (X_L^2 - X_C^2)}$

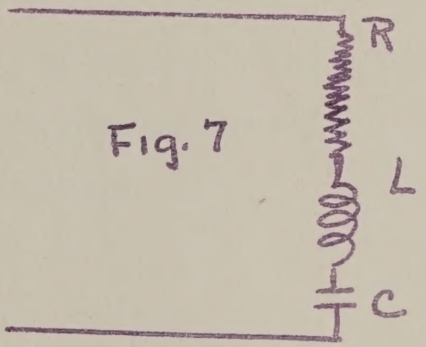


Fig. 7

48. A variable capacitor having a maximum capacitance of 370 micromicrofarads and a minimum of 25 micromicrofarads, used in conjunction with a 175 microhenry coil, will have a frequency coverage (in kcs) of:

_______ a) 625

_______ b) 3,550

___✓___ c) 1,785

_______ d) 3,025

_______ e) 2,410

49. A parallel LCR circuit operated below its resonant frequency:

_______ a) has maximum impedance

_______ b) has minimum impedance

_______ c) causes the circuit current to lead the applied voltage

_______ d) is capacitive

___✓___ e) is inductive

50. A series LCR circuit is resonant at 3 mcs. If both the inductance and capacitance are doubled, the new resonant frequency (mcs)

___✓___ a) 0.75

_______ b) 1.5

_______ c) 3

_______ d) 6

_______ e) 12

51. A parallel circuit has an impedance of 60,000 __/0°__ ohms. The coil has a Q of 100 and an inductance of 159 microhenries. The circuit is resonant at:

_______ a) 10 mcs ?

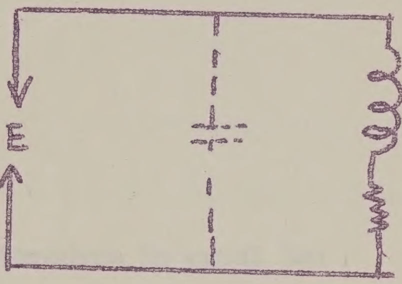
_______ b) 1 mcs

_______ c) 60 kcs

___✓___ d) 0.6 mcs

_______ e) 0.1 mcs

52. The true power of the inductive load in Figure 10 is 500 watts. If the power factor is corrected to unity by using a capacitor in parallel as shown, the true power of the circuit:



_______ [✓ a) remains the same]

_______b) increases

_______c) decreases

_______d) is zero

_______e) equals the product of I a nd Z

53. The current in the capacitive branch of a high Q parallel resonant circuit:

_______a) is greater than the current in the inductive branch

_______b) lags the current in the inductive branch

_______c) is less than the line current

_______ [✓ d) equals the current in the inductive branch]

_______e) lags the applied voltage

54. Automatic gain control is usually employed to:

_______a) increase the bandwidth of a system.

_______b) improve the sensitivity of a system

_______ [✓ c) provide greater stability]

_______d) control the frequency of the circuit

55. Negative feedback:

_______a) increases the gain of an amplifier

_______b) improves the minimum

_______c) decreases the stability of an amplifier

_______ [✓ d) reduces the distortion produced within the amplifier]

56. A device which will appreciably change its resistance with a change in temperature may be:

_______a) transistor

_______b) thermocouple

___✓___c) thermistor

_______d) resistor

57. The oscillator frequency of a superheterodyne is equal to:

_______a) the IF

_______b) the difference of the signal frequency and the modulation

_______c) the sum of the signal frequency and the modulation frequency

_______d) the signal frequency minus twice the IF

___✓___e) the signal frequency plus the IF

58. If the time constant of theAVC filter circuit is very large:

___✓___a) an undesirable time-lag will result

_______b) the AVC volta ge will contain a large audio component

_______c) delayed AVC is the result

_______d) serious audio distortion will result

_______e) excellent AVC action will be obtained

59. Image suppression may be obtained by using:

_______a) as few r-f amplifiers as possible

_______b) a low IF

___✓___c) a high IF

_______d) low Q circuits

_______e) AVC

60. All radio frequencies except the IF in the output of the mixer are by-passed to ground by means of the:

________a) screen by-pass capacitor

________b) plate by-pass capacitor

________c) high impedance offered to all other frequencies by the tank circuit

____✓___d) low impedance offered to all other frequencies by the tank circuit

________e) r-f choke coil

61. R-f amplifiers used in receivers are class:

____✓___a) A

________b) B

________c) AB

________d) $AB_2$

________e) C

62. In aligning a superheterodyne it is best to start with the:

________a) oscillator

____✓___b) i-f amplifier

________c) mixer

________d) r-f amplifier

________e) a-f amplifier

63. To prevent overloading by strong signals the first r-f amplifier a receiver uses a :

________a) sharp-cutoff type tube

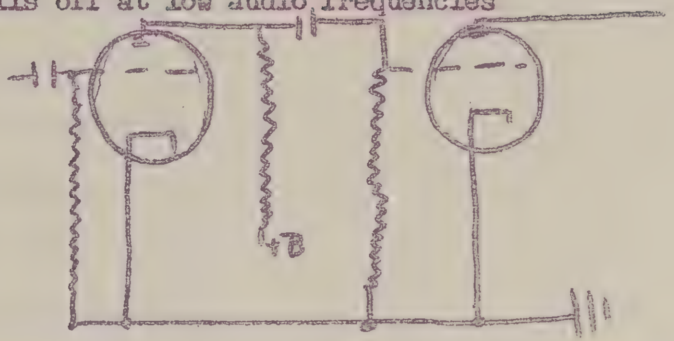
________b) beam power tube

________c) triode

________d) diode

____✓___e) remote - cutoff tubes

64. The voltage gain of the amplifier shown falls off at low audio frequencies because of:



____✓__a) the coupling capacitor

_______b) the total shunt capacitance

_______c) transit time

_______d) interelecteode capacitance

65. Push-pull audio amplifiers should not be operated in which of the following classes:

_______a) A

_______b) $AB_2$

_____✓_c) B

_______d) C

66. An a-f voltage amplifier with a gain of 20 is connected to a similar amplifier with a gain of 50. Both input and output impedances are equal. The overall gain is:

_______a) 70

_______b) 70 decibels

____✓__c) 60 decibels

_______d) 30 decibels

_______e) 36.9 decibels

67. The proper size cathode by-pass capacitor in a given a-f amplifier is 5 microfarads. If a microfarad capacitor is substituted:

_______a) the low-frequency will increase

_______b) the low-frequency will decrease

_______c) the high frequency response will be greatly decreased

_______d) the overall output will be increased

_______e) The degeneration will be decreased

68. A 0.1 microfarad capacitor shunted across the output of an a-f amplifier:

________a) increases the total output

________b) increases the output at low frequencies

________c) destroys the low-frequency response

____✓____d) decreases the output at high frequencies

________e) increases the output at high frequencies

69. Inverse feedback in an apf amplifier is used to:

________a) increase the amplifier output

________b) decrease degeneration

________c) increase the selectivity

________d) reduce the band-pass

____✓____e) improve the fidelity

70. The falling off in response at low frequencies in a transformer coupled amplifier is due to:

________a) high primary inductive reactance

________b) shunting capacities

________c) reduced primary inductance

________d) leakage reactance

____✓____e) reduced primary inductive reactance

71. An a-f amplifier has a cathode resistance of 500 ohms. If the amplifier is to have a frequency response that is "flat" from 150 to 10,000 cps, the minimum amount of capacity (in microfarads) that may be used for the cathode by-pass capacitor is:

____✓____a) 21.2

________b) 10.6

________c) 1.06

________d) 8

________e) 2.12

73. An a-f decoupling filter (RC) is to be used in an amplifier screen circuit to prevent an 800-cps signal from affecting the screen. Because of voltage requirements the largest resistor which may be used is 5,000 ohms. The minimum cpacity (in microfarads) that may be used with this resistor is:

________[✓ a) 0.3975]

________b) 3.975

________c) 0.1

________d) 1.0

________e) 0.01

74. A transformer has a step-up ratio of 1 to 10. With 100 volts at 1 ampere in the primary, the secondary voltage and current will be:

________a) 1,000 volts at 10 amperes

________b) 100 volts at 1 ampere

________c) 10 volts at 10 amperes

________[✓ d) 1,000 volts at 0.1 ampere]

________e) 10 volts at 0.1 ampere

75. The type of filter in power supplied is:

________a) high-pass

________b) band-pass

________[✓ c) low-pass]

________d) crystal

________e) band-suppression